

## **BORE-GARD® TRENCHLESS RACEWAY SYSTEMS - PRODUCT SPECIFICATIONS**

### **PART 1 GENERAL**

#### **1.01 SECTION INCLUDES**

This specification covers rigid nonmetallic conduit (RNC) for the installation of electrical, voice, data, video and other low voltage cabling. This system will be designed to meet the rigorous requirements of horizontal directional drilling for electrical and datacom applications. All necessary fittings and accessories shall be provided by the same manufacturer as the conduit system to satisfy warranty requirements.

#### **1.02 REFERENCES**

A. Conduit and fittings shall be listed and approved listed specifically for the use with horizontal directional drilling.

B. UL listing will allow the product to be used with electrical conductors as per the 1999 National Electric Code (NEC), Articles 300 and 347 and the 2002 National Electrical Code (NEC), Articles 300 and 352.

C. CSA certified for Canadian applications per the Canadian Electrical Code (CEC) Part 1, Section 12.

#### **1.03 SYSTEM DESCRIPTION**

Each conduit section will be manufactured in standard ten or twenty foot lengths. Trade sizes 3, 4, 5, and 6 inch will be available. Conduit design must incorporate a watertight and airtight seal and locking ring that enables fast, cement free assembly. Each section of conduit will be belled on one end with two grooves machined into the inside diameter (ID) of the bell and with a groove and chamfer machined into the outside diameter (OD) of the spigot end. Conduit must contain a lubricated triple-lobed gasket factory installed in the bell end of the pipe to seal up to 75 psi with a 65' pre-bent radius.

### **PART 2 PRODUCT**

#### **2.01 MATERIALS**

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- A. Conduit will be engineered with PVC compound offering superior strength and flexibility when compared to standard Schedule 40 PVC.
- B. Each length of pipe will incorporate a seal, locking ring, end caps, and a bell.
- C. Each conduit section will be belled on one end with two grooves machined into the inside diameter (ID) of the bell and with a groove and chamfer machined into the outside diameter (OD) of the spigot end.
- D. Conduit will contain a lubricated triple-lobed gasket factory installed in the bell end of pipe to seal out ground water, boring lubricants, and other contaminants from entering pipe. Conduit can contain air pressure of up to 75 psi with a safety factor of 2 at the tightest bend radius of 65 feet.
- E. The maximum bend radius for conduit will be 65 feet.
- F. Nylon locking straps will secure the connection between two pieces of conduit without need of cement.
- G. Conduit will be grey in color and sunlight resistant.

### **2.02 FITTINGS**

- A. Listed Schedule 40 fittings shall be used with the PVC conduit. Schedule 40 fittings shall be easily attached using standard PVC cement. Manufacturer shall make available all necessary fittings and accessories.

## **PART 3 PERFORMANCE REQUIREMENTS**

### **3.01 TENSILE LOADING WITH BEND RADIUS**

Conduit shall be rated at 7,000, 8,700, 11,300, and 14,000 pounds for 3", 4", 5", and 6" sizes, respectively, based on laboratory testing where it was pre-bent in a special fixture to a 65' radius and it was then pulled to failure. The loads were recorded, averaged, and a safety factor was used for the final rating.

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### Tensile Loading Without Bend Radius

Product shall be pulled to failure without any bend, loads in excess of 8,400, 10,400, 13,600, and 16,000 pounds for 3", 4", 5", and 6" respectively as tested in the laboratory.

### 3.02 TYPICAL CRUSH LBS. @ 30% DEFLECTION

3" - 1,225 lbs.

4" - 1,075 lbs.

5" - 950 lbs.

6" - 950 lbs.

## PART 4 ASSEMBLY

The trenchless conduit system shall be designed for easy assembly without the need of PVC cement and installed in a manner as described below.

### 4.01 STEPS

1. Position conduit with the print line facing up.
2. Remove nylon locking strap and set it aside.
3. Remove end caps on first stick only, trim spigot end of pipe at the groove before attaching the pulling eye/grip attachment.
4. Insert pulling eye into spigot end of conduit.
5. Tighten pulling eye so that it expands against the interior of the conduit.  
Use of sleeve over O.D. of conduit is recommended.
6. The installer should use appropriate instrumentation to insure the maximum pull rating is not exceeded.
7. Take the next piece of conduit and insert spigot end into belled end of first piece until the insertion line is no longer visible.

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8. Slide nylon locking strap into slot on the side of the bell. Push the strap in completely.
9. Repeat with remaining sections as space allows.
10. Conduit is now ready for installation.